

What is claimed is:

1. A method for fabricating a color filter of a liquid crystal display (LCD) device comprising:

- 5 providing a transparent substrate;  
depositing a color filter film on the substrate;  
forming a mask pattern on the color filter film, a first region of the color filter film being covered by the mask pattern and a second region of the color filter film being free of coverage by the mask pattern; and  
10 removing the first region of the color filter film and the mask pattern.

2. The method of claim 1, further comprising irradiating the color filter film prior to removing the first region of the color filter film.

- 15 3. The method of claim 1, further comprising applying developer to the color filter film to remove the first region of the color filter film and the mask pattern.

- 20 4. The method of claim 1, wherein the mask pattern is formed of a black resin.

5. The method of claim 1, wherein forming the mask pattern comprises printing the mask pattern on the color filter film.

- 25 6. The method of claim 5, wherein printing the mask pattern

comprises:

providing a cliché including a plurality of grooves;

filling at least one of the grooves of the cliché with opaque material; and

5 applying the opaque material filled in the at least one of the grooves of the cliché to the color filter film.

7. The method of claim 6, wherein applying the opaque material onto the color filter film comprises:

10 transferring the opaque material filled in the at least one of the grooves of the cliché to a transfer apparatus; and

applying the opaque material to the color filter film using the transfer apparatus.

8. The method of claim 7, wherein the transfer apparatus comprises  
15 a printing roller, transferring the opaque material filled in the at least one of the grooves of the cliché to the transfer apparatus comprises rotating the printing roller on the cliché, and applying the opaque material to the color filter film comprises rotating the printing roller containing the opaque material on the color filter film.

20 9. The method of claim 6, further comprising disposing an amount of the opaque material that will more than fill the at least one of the grooves on a surface of the cliché and pulling the opaque material into the at least one of the grooves.

25 10. The method of claim 9, further comprising pulling the opaque

material into the at least one of the grooves using a blade to flatten the opaque material into the at least one of the grooves and removing the excess opaque material from the surface of the cliché.

5            11.        The method of claim 10, further comprising pulling the blade in a direction that is essentially along the longest length of the at least one of the grooves.

12.        The method of claim 1, wherein the color filter film is deposited on  
10    the substrate using lamination.

13.        The method of claim 1, further comprising forming an opaque matrix on the color filter.

15           14.        The method of claim 13, wherein forming the opaque matrix comprises:

             providing a cliché including a plurality of grooves;

             filling opaque material into at least one of the grooves of the cliché;

             transferring the opaque material filled into the at least one of the grooves  
20    of the cliché to a transfer apparatus; and

             applying the opaque material to the color filter film using the transfer apparatus to form the opaque matrix on the color filter.

15           15.        The method of claim 14, wherein the opaque material is filled in each of the grooves of the cliché.  
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16. The method of claim 14, wherein the transfer apparatus comprises a printing roller, transferring the opaque material filled in the at least one of the grooves of the cliché to the transfer apparatus comprises rotating the printing roller on the cliché, and applying the opaque material to the color filter film comprises rotating the printing roller containing the opaque material on the color filter film.

17. The method of claim 14, further comprising disposing an amount of the opaque material that will more than fill the at least one of the grooves on a surface of the cliché and pulling the opaque material into the at least one of the grooves.

18. The method of claim 17, further comprising pulling the opaque material into the at least one of the grooves using a blade to flatten the opaque material into the at least one of the grooves and removing the excess opaque material from the surface of the cliché.

19. The method of claim 18, further comprising pulling the blade in a direction that is essentially along the longest length of the at least one of the grooves.

20. A method for fabricating a color filter of a liquid crystal display (LCD) device comprising:

forming an opaque matrix on a transparent substrate;

depositing a plurality of color filter films on the opaque matrix; and

after each color filter film is deposited, printing a mask pattern on the color film and removing the mask pattern and a portion of the color film to form a color filter pattern.

5           21.     The method of claim 20, further comprising irradiating each color filter film prior to removing the mask pattern and portion of the color film.

22.     The method of claim 20, further comprising applying developer to each color filter film to remove the mask pattern and portion of the color film.

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23.     The method of claim 21, wherein each mask pattern is formed of an opaque material that is opaque to radiation used to irradiate each color filter film.

15           24.     The method of claim 20, wherein forming the mask pattern comprises printing the mask pattern on each color filter film.

25.     The method of claim 24, wherein each mask pattern is printed over different portions of the substrate.

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26.     The method of claim 25, wherein printing the mask pattern on each color filter film comprises:

providing a cliché including a plurality of grooves;

filling at least one of the grooves of the cliché with opaque material; and

25           applying the opaque material filled in the at least one of the grooves of the

cliché to the color filter film.

27. The method of claim 26, wherein applying the opaque material to the color filter film comprises:

5       transferring the opaque material filled in the at least one of the grooves of the cliché to a transfer apparatus; and

          applying the opaque material to the color filter film using the transfer apparatus.

10       28. The method of claim 27, wherein the transfer apparatus comprises a printing roller, transferring the opaque material filled in the at least one of the grooves to the transfer apparatus comprises rotating the printing roller on the cliché, and applying the opaque material to the color filter film comprises rotating the printing roller containing the opaque material on the color filter film.

15       29. The method of claim 26, further comprising disposing an amount of the opaque material that will more than fill the at least one of the grooves on a surface of the cliché and pulling the opaque material into the at least one of the grooves.

20       30. The method of claim 27, further comprising pulling the opaque material into the at least one of the grooves using a blade to flatten the opaque material into the at least one of the grooves and removing the excess opaque material from the surface of the cliché.

31. The method of claim 30, further comprising pulling the blade in a direction that is essentially along the longest length of the at least one of the grooves.

5 32. The method of claim 20, further comprising depositing each of the color filter films on the substrate and the opaque matrix using lamination.

33. The method of claim 20, wherein forming the opaque matrix comprises:

10 providing a cliché including a plurality of grooves;

filling at least one of the grooves of the cliché with opaque material to form the opaque matrix;

transferring the opaque material filled in the at least one of the grooves of the cliché to a transfer apparatus; and

15 applying the opaque material to the substrate using the transfer apparatus to form the opaque material on the substrate.

34. The method of claim 33, wherein the opaque material is filled in each of the grooves of the cliché.

20 35. The method of claim 33, wherein the transfer apparatus comprises a printing roller, transferring the opaque material filled in the at least one of the grooves of the cliché to the transfer apparatus comprises rotating the printing roller on the cliché, and applying the opaque material to the substrate comprises  
25 rotating the printing roller containing the opaque material on the substrate.

36. The method of claim 20, further comprising depositing each of the color filter films on the substrate and the opaque matrix such that a top of any color filter films and patterns on the substrate and the opaque matrix are planar.

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37. The method of claim 33, further comprising disposing an amount of the opaque material that will more than fill the at least one of the grooves on a surface of the cliché and pulling the opaque material into the at least one of the grooves.

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38. The method of claim 37, further comprising pulling the opaque material into the at least one of the grooves using a blade to flatten the opaque material into the at least one of the grooves and removing the excess opaque material from the surface of the cliché.

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39. The method of claim 38, further comprising pulling the blade in a direction that is essentially along the longest length of the at least one of the grooves.

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40. A method for fabricating a color filter of a liquid crystal display (LCD) device comprising:

forming a black matrix on a transparent substrate;

depositing a red color filter film on the black matrix;

printing a first black resin pattern on a first portion of the red color filter film

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and leaving a second portion of the red color film being free from coverage by the



first black resin pattern;

irradiating the second portion of the red color filter film;

applying developer to the red color filter film to thereby remove the first black resin pattern and the first portion of the red color film and form a red color

5 filter pattern from the second portion of the red color film;

depositing a green color filter film on the substrate;

printing a second black resin pattern on a first portion of the green color filter film and leaving a second portion of the green color film being free from coverage by the second black resin pattern;

10 irradiating the second portion of the green color film;

applying developer to the green color filter film to thereby remove the second black resin pattern and the first portion of the green color film and form a green color filter pattern from the second portion of the green color film;

depositing a blue color film on the substrate;

15 printing a third black resin pattern on a first portion of the blue color filter film and leaving a second portion of the blue color film being free from coverage by the third black resin pattern;

irradiating the second portion of the blue color filter film; and

20 applying developer to the blue color filter film to thereby remove the third black resin pattern and the first portion of the blue color film and form a blue color filter pattern from the second portion of the blue color film.

41. The method of claim 40, further comprising depositing the red, green, and blue color filter films on the substrate by lamination.

42. The method of claim 40, wherein printing of each of the first, second, and third black resin patterns comprises:

providing a cliché including a plurality of grooves;

filling a black resin in the grooves of the cliché;

5 transferring the black resin filled in the grooves of the cliché onto a printing roller; and

rolling the printing roller coated with the black resin on the color filter films.

43. The method of claim 40, further comprising depositing each of the  
10 color filter films on the substrate only on portions of the substrate being free from coverage by another of the color filter films.